

What is claimed is:

- Sub B2
1. A device comprising:  
a substrate;  
at least one active component formed on a top  
5 surface of the substrate; and  
a first laminate over the top surface of the  
substrate, encapsulating the device.
2. The device of claim 1 wherein the device comprises  
10 an OLED device.
3. The device of claim 2 wherein the substrate  
supports the active component.
- 15 4. The device of claim 3 wherein the substrate  
comprises a flexible substrate.

- Sub B3
5. The device of claim 4 wherein the substrate  
material is selected from a group of materials  
20 consisting of polymer, glass, ceramic, or semiconductor  
material.
6. The device of claim 3 wherein the substrate  
comprises a transparent substrate.

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7. The device of claim 6 wherein the substrate material is selected from a group of materials consisting of polymer or glass.

5 8. The device of claim 3 wherein the substrate comprises a flexible transparent substrate.

9. The device of claim 8 wherein the substrate comprises a material selected from a polymer or glass.

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10. The device of claim 1 wherein the substrate supports the active component.

11. The device of claim 10 wherein the substrate  
15 comprises a flexible substrate.

12. The device of claim 11 wherein the substrate material is selected from a group of materials consisting of polymer, glass, ceramic, or semiconductor  
20 material.

13. The device of claim 10 wherein the substrate comprises a transparent substrate.

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14. The device of claim 13 wherein the substrate material is selected from a group of materials consisting of polymer or glass.

5 15. The device of claim 10 wherein the substrate comprises a flexible transparent substrate.

16. The device of claim 15 wherein the substrate comprises a material selected from a polymer or glass.

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17. The device of claim 6, 7, 8, 9, 13, 14, 15, or 16 further comprises a second laminate on a bottom surface of the substrate, wherein the second laminate comprises a transparent laminate.

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18. The device of claim 17 wherein the laminates comprises:

a laminate substrate; and

a sealant on a surface of the laminate substrate

20 that contacts the device.

19. The device of claim 18 wherein the laminate substrate comprises a material having a sufficient

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during processing.

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20. The device of claim 19 wherein the laminate  
5 substrate comprises a plastic material.

21. The device of claim 20 wherein the plastic laminate  
substrate is selected from poly(ethylene terephthalate),  
poly(butylene terephthalate), poly(enthylene  
10 naphthalate), polycarbonate, polyimides, polysulfones,  
poly(p-phenylene ether sulfone), polyethylene,  
polypropylene, poly(vinyl chloride), polystyrene, or  
poly(methyl methyleacrylate).

15 22. The device of claim 21 wherein the sealant  
comprises an activation temperature which causes the  
sealant to flow to ensure good sealing between the  
laminate and the device.

20 23. The device of claim 22 wherein the activation  
temperature is below a temperature which damages the  
device.

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24. The device of claim 23 wherein the laminate comprises a barrier layer on the laminate, the barrier layer inhibits the diffusion of air or moisture.

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5 25. The device of claim 24 wherein the barrier layer comprises a material selected from a group consisting of a metallic or a dielectric material.

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10 26. The device of claim 25 wherein the metallic material comprises copper or aluminum and dielectric material comprises silicon monoxide, silicon oxide, silicon dioxide, silicon nitride ( $\text{Si}_3\text{N}_4$ ), or a metal oxide.

15 27. The device of claim 26 wherein the sealant comprises an activation temperature which causes the sealant to flow to ensure good sealing between the laminate and the device.

20 28. The device of claim 27 wherein the activation temperature is below that which damages the device.

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29. The device of claim 18 wherein the laminate comprises a barrier layer on the laminate, the barrier layer inhibits the diffusion of air or moisture.

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5 30. The device of claim 29 wherein the barrier layer comprises a material selected from a group consisting of a metallic or a dielectric material.

10 31. The device of claim 3, 4, 5, 10, 11 or 12 further comprises a second laminate on a bottom surface of the substrate.

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15 32. The device of claim 31 wherein the laminates comprises:

a laminate substrate; and  
a sealant on a surface of the laminate substrate that contacts the device.

20 33. The device of claim 32 wherein the laminate substrate comprises a material having a sufficient thermal stability to maintain mechanical integrity during processing.

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34. The device of claim 33 wherein the laminate substrate comprises a plastic material.

35. The device of claim 34 wherein the plastic laminate  
5 substrate is selected from poly(ethylene terephthalate),  
poly(butylene terephthalate), poly(enthylene  
naphthalate), polycarbonate, polyimides, polysulfones,  
poly(p-phenylene ether sulfone), polyethylene,  
polypropylene, poly(vinyl chloride), polystyrene, or  
10 poly(methyl methyleacrylate).

36. The device of claim 35 wherein the sealant  
comprises an activation temperature which causes the  
sealant to flow to ensure good sealing between the  
15 laminate and the device.

37. The device of claim 36 wherein the activation  
temperature is below a temperature which damages the  
device.

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38. The device of claim 37 wherein the laminate  
comprises a barrier layer on the laminate, the barrier  
layer inhibits the diffusion of air or moisture.

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39. The device of claim 38 wherein the barrier layer comprises a material selected from a group consisting of a metallic or a dielectric material.

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5 40. The device of claim 39 wherein the metallic material comprises copper or aluminum and dielectric material comprises silicon monoxide, silicon oxide, silicon dioxide, silicon nitride ( $\text{Si}_2\text{N}_4$ ), or a metal oxide.

10 41. The device of claim 32 wherein the sealant comprises an activation temperature which causes the sealant to flow to ensure good sealing between the laminate and the device.

15 42. The device of claim 41 wherein the activation temperature is below that which damages the device.

43. The device of claim 32 wherein the laminate  
20 comprises a barrier layer on the laminate, the barrier layer inhibits the diffusion of air or moisture.



44. The device of claim 43 wherein the barrier layer comprises a material selected from a group consisting of a metallic or a dielectric material.

5 45. The device of claim 2, 3, or 10 wherein the laminate comprises:

a laminate substrate; and

a sealant on a surface of the laminate substrate that contacts the device.

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46. The device of claim 45 wherein the laminate substrate comprises a material having a sufficient thermal stability to maintain mechanical integrity during processing.

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47. The device of claim 46 wherein the sealant comprises an activation temperature which causes the sealant to flow to ensure good sealing between the laminate and the device.

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48. The device of claim 47 wherein the laminate comprises a barrier layer on the laminate, the barrier layer inhibits the diffusion of air or moisture.

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49. The device of claim 45 wherein the sealant comprises an activation temperature which causes the sealant to flow to ensure good sealing between the laminate and the device.

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50. The device of claim 45 wherein the laminate comprises a barrier layer on the laminate, the barrier layer inhibits the diffusion of air or moisture.

10 51. In the fabrication of a device, a method for packaging the comprising:

providing a device comprising a substrate having at least one active component formed on a top surface thereof;

15 placing a laminate on the top surface of the substrate; and

pressing the laminate against the device to activate a sealant which causes the laminate to adhere to the device.

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52. The method of claim 51 wherein the device comprises an OLED.

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53. The method of claim 52 wherein the substrate comprises a material selected from polymer or glass.

54. The method of claim 51 wherein the device comprises  
5 a flexible OLED.

55. The method of claim 54 wherein the substrate comprises a material selected from polymer or glass.

10 56. The method of claim 51 wherein the device comprises a flexible device.

20 57. The method of claim 51, 52, 53, 54, 55, or 56 further comprises placing a second laminate on a bottom surface of the device, wherein the pressing activates the sealant to cause the laminates to adhere to the device.

58. The method of claim 57 wherein the sealant is  
20 located on the inner surface of the laminates that contacts the device.

59. The method of claim 58 further comprises heating the laminate to activate the sealant.

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60. The method of claim 59 wherein heating the laminate causes the sealant to flow.

5 61. The method of claim 60 wherein pressing the laminates comprises passing the device with the laminate through rollers that presses the laminates against the device.

10 62. The method of claim 61 wherein the rollers heat the laminates to activate the sealant.

63. The method of claim 62 wherein the laminate comprises a barrier layer.

15 64. The method of claim 63 wherein the barrier inhibits the diffusion of air or moisture.

65. The method of claim 64 wherein the laminates  
20 comprises flexible laminates.

66. The method of claim 58 wherein pressing the laminates comprises passing the device with the laminate

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through rollers that presses the laminates against the device.

67. The method of claim 66 wherein the rollers heat the  
5 laminates to activate the sealant.

68. The method of claim 67 wherein heating the laminate causes the sealant to flow.

10 69. The method of claim 68 wherein the laminates comprises flexible laminates.

70. The method of claim 62 wherein the laminate comprises a barrier layer.

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71. The method of claim 51, 52, 53, 54, 55, or 56  
wherein the sealant is located on the inner surface of  
the laminates that contacts the device.

20 72. The method of claim 71 further comprises heating the laminate to activate the sealant.

73. The method of claim 72 wherein heating the laminate causes the sealant to flow.

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74. The method of claim 73 wherein pressing the laminates comprises passing the device with the laminate through rollers that presses the laminates against the device.

75. The method of claim 74 wherein the rollers heat the laminates to activate the sealant.

76. The method of claim 75 wherein the laminate comprises a barrier layer.

77. The method of claim 76 wherein the laminates comprises flexible laminates.

78. The method of claim 71 wherein pressing the laminates comprises passing the device with the laminate through rollers that presses the laminates against the device.

79. The method of claim 78 wherein the rollers heat the laminates to activate the sealant.

80. The method of claim 79 wherein heating the laminate causes the sealant to flow.

81. The method of claim 80 wherein the laminates  
5 comprises flexible laminates.

82. The method of claim 71 wherein the laminate comprises a barrier layer.

10 83. The method of claim 51 wherein pressing the laminate comprises passing the device with the laminate through rollers that presses the laminate against the device.

15 84. The method of claim 83 wherein the rollers heat the laminate to activate the sealant.

85. The method of claim 84 wherein heating the laminate causes the sealant to flow.

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